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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/933,198	08/21/2001	Taketoshi Hibi	1190-0508P	6457

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EXAMINER

TRAN, TRANG U

ART UNIT PAPER NUMBER

2614

DATE MAILED: 12/24/2003

4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/933,198

Applicant(s)

HIBI, TAKETOSHI

Examiner

Trang U. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 . 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 10 recites the limitation "the rate of reduction" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Drawings

4. Figures 8-13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 and 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stanton (US Patent No. 5,917,558) in view of Sampsell (US Patent No. 5,233,385).

In considering claim 1, Stanton discloses all the claimed subject matter, note 1) the claimed a light source for emitting light containing different color components is met by the lamp 12 (Fig. 1, col. 2, lines 51-54), 2) the claimed a sequential color selecting means for sequentially passing different color components of the light from said light source is met by the color wheel 16 which comprises three 120 segments of dichroic filters of different colors, in this case red, green and blue (Fig. 1, col. 2, line 54 to col. 3, line 7), 3) the claimed means for generating white light is met by the lamp 12 and the reflector 14 (Fig. 1, col. 2, lines 51-54), 4) the claimed a spatial light modulator is met by the light valve 24 which is modulate the sequentially red, green and blue output beam 22 accordance with the video information (Fig. 1, col. 2, line 54 to col. 3, line 32), and 5) the claimed means for guiding the light having passed through the sequential color selecting means to said spatial light modulator is met by the light valve drive 26 which receives its video information from a video input 28 (Fig. 1, col. 2, line 54 to col. 3, line 32). However, the admitted prior art explicitly does not disclose the claimed means for adjusting the temporal average intensity of the white light and wherein said spatial light modulator spatially modulates the light having passed through the sequential color selecting means and the white light with its temporal average intensity having been adjusted, to generate image light.

Sampsell teaches that the present invention disclosed herein comprises enhancing color projection system with use of white light. A portion of the original white light beam is preserved to raise the overall brightness of the scene, the filtered beams of red, green and blue are used to color the scene to the appropriate extent, the original

white light beam can be filtered either spatially or temporally, with either a portion of time or illuminated surface area being reserved for white light (Fig. 1, col. 1, line 65 to col. 2, line 5) and for projection systems that are to be viewed directly by the eye, such as televisions, or movie projectors, it is possible that the order of presentation of the white light and the primary additive colors will be adjusted to achieve the most pleasing psychophysical presentation (col. 2, line 24 to col. 4, line 38).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the using of white light as taught by Sampsell into Stanton's system in order to provide better brightness without having too great an effect upon color saturation.

In considering claim 3, the claimed wherein said means for generating the white light includes means for combining light the reflected at the sequential color selecting means and the light having passed through the sequential color selecting means is met by the color wheel of Fig. 1B which combines the percentage of the total time slot allocated for each color is set aside for a "white" field, this is actually a clear, or unfiltered, section of the wheel (Fig. 1B, col. 2, lines 49-68) of Sampsell.

In considering claim 4, the claimed wherein said means for adjusting the temporal average intensity of the white light adjusts the light reflected at the sequential color selecting means, to thereby adjust the temporal average intensity of the white light indirectly is met by the white light and the primary additive colors will be adjusted to achieve the most pleasing psychophysical presentation and a control function is needed

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to determine when it has reflected enough white light to raise the minimum intensity to the required level (col. 2, line 24 to col. 4, line 38) of Sampsell.

In considering claim 5, the claimed wherein said sequential color selecting means has a plurality of color filters, which are formed of dichroic filters, and the light reflected at an incident surface of the sequential color selecting means is guided to an exit surface of the sequential color selecting means so that it is combined with the light having passed through the sequential color selecting means is met by the color wheel 16 which comprises three 120 segments of dichroic filters of different colors, in this case red, green and blue (Fig. 1, col. 1, line 63 to col. 2, line 6 and col. 2, line 54 to col. 3, line 7) of Stanton.

In considering claim 6, the claimed wherein said sequential color selecting means includes a plate member held rotatably about an axis of rotation, said plate member is divided into three or more regions by lines extending in radial directions from the axis of rotation, and at least three of the regions have color filters of three primary colors of red, green and blue is met by the color wheel of Fig. 1B which combines the percentage of the total time slot allocated for each color is set aside for a "white" field, this is actually a clear, or unfiltered, section of the wheel (Fig. 1B, col. 2, lines 49-68) of Sampsell.

In considering claim 7, the claimed wherein said spatial light modulator comprises a digital micromirror device is met by the modulator 18 is the DMD (Fig. 2A, col. 3, line 22 to col. 4, line 38) of Sampsell or col. 1, lines 42-62 of Stanton.

In considering claim 8, the claimed further including a controller for adjusting the temporal average intensity depending on the contents of an image signal representing the image to be projected is met by the light valve drive 26 which receives its video information from a video input 28 (Fig. 1, col. 2, line 54 to col. 3, line 32) of Stanton.

Claim 9 is rejected for the same reason as discussed in claims 1 and 3-4.

In considering claim 10, the claimed wherein the rate of reduction by the adjusting means is variable is met by the percentage of color saturation will be reduced to increase the brightness of the image and it is up to the designer to determine at what point he or she has received the maximum brightness possible, without detrimental decrease in color saturation, so the percentage of adjusting means is varied (col. 4, lines 5-44) of Sampsell.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stanton (US Patent No. 5,917,558) in view of Sampsell (US Patent No. 5,233,385) and further in view of Bos et al. (US Patent No. 5,387,920).

In considering claim 2, the combination of Stanton and Sampsell disclose all the limitation of the instant invention, except for providing the claimed wherein said means for adjusting the temporal average intensity of the white light includes a liquid crystal shutter. Bos et al teach that in the third preferred embodiment of the switchable color filter, none of the three linear polarizing filters (liquid crystal shutters) has complementary polarization states or axes and each polarizing filter has one polarization axis which transmitted white light, all four of the output states provide a selection of light of three different colors and white light at the output of the switchable

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color filter (Fig. 4, col. 4, lines 17-23 and col. 16, line 61 to col. 19, line 22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the three linear polarizing filters (liquid crystal shutters) for adjust the white light as taught by Bos et al into the combination of Stanton and Sampsell' system in order to provide output states of light of three different colors and white light to form an image in full color and better brightness.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shioya et al. (US Patent No. 6,597,409 B1) disclose video projector.

Kunzman (US Patent No. 6,392,717 B1) discloses high brightness digital display system.

Hiroshima et al. (US Patent No. 5,357,288) disclose liquid crystal projector and method for projecting image.

Taira et al. (US Patent No. 6,593,985 B1) disclose color shutter and color image display apparatus.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Trang U. Tran** whose telephone number is **(703) 305-0090**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W. Miller**, can be reached at **(703) 305-4795**.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 308-HELP.

TT TT
December 9, 2003


MICHAEL H. LEE
PRIMARY EXAMINER